

Appl. No. 10/673,021
Amdt. dated October 10, 2007
Reply to Final Office Action of August 13, 2007

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REMARKS

Claims 1 to 52 were pending in the application at the time of final examination. Claims 1, 3 to 7, 9 to 12, 14, 16 to 20, 22 to 25, 27, 29 to 33, 35 to 38, 40, 42 to 46, and 48 to 51 remain rejected as anticipated. Claims 2, 8, 13, 15, 21, 26, 28, 34, 39, 41, 47 and 52 remain rejected as obvious.

Claims 1, 3 to 7, 9 to 12, 14, 16 to 20, 22 to 25, 27, 29 to 33, 35 to 38, 40, 42 to 46, and 48 to 51 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,694,435 hereinafter referred to as Kiddy.

The rejection of Claims 1, 14, 27, and 40 stated in part:

receiving an application program that comprises application program instructions and application program data (col. 5, lines 5-25);

determining an application program instruction location permutation to apply to a current instruction counter value (col. 5, lines 45-67);

determining an application program data location permutation to apply to a current data location counter value; receiving said current instruction counter value (col. 5, lines 45-67);

applying said application program instruction location permutation to said current instruction counter value to obtain a first reference to an application program instruction in an instruction stream to execute (col. 6, lines 1-47);

if said application program instruction references application program data, applying said application program data location permutation to data referenced by said application program instruction to obtain a second reference to data to access, said data to access interleaved with application program instructions in said instruction stream (col. 6, lines 65-67, col. 7, lines 1-30); and

executing said application program instruction (col. 7, lines 13-30).

The rationale for continuing this rejection stated:

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8. Regarding the arguments against the prior art, Examiner respectfully submits that while the elements must be arranged as required by the claim, this is not an *ipse dixit* test, i.e., identity of terminology is not required. In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Note that, in some circumstances, it is permissible to use multiple references in a 35 U.S.C. 102 rejection. See MPEP § 2129. **Applicant's arguments are not persuasive.**

9. Examiner respectfully submits that the "laundry list" of Kiddy anticipates the claimed limitations of determining the permutation to apply to an instruction counter value, i.e. Kiddy teaches permuting the instructions to provide obfuscation, and maintain a stack-balanced instructions, in other, words, where instructions point to and counters values are, they are permuted to maintain a workable product (col. 5, lines 1-67, claims 1-59). **Applicant's arguments are not persuasive.**

10. Applicant's arguments fail to comply with 37 CFR 1.111 (b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Throughout the arguments it is stated that the art does not teach to the same level of detail without clearly pointing out what is not taught.

11. Applicant's arguments do not comply with 37 CFR 1.111 (c) because they do clearly point out the patentable novelty which he or she thinks the claims present in of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Applicant respectfully traverses the anticipation rejection of each of Claims 1, 14, 27, and 40. Each of the above remarks will be addressed in detail as will the continued rejection.

Applicant respectfully notes that with respect to the anticipation rejection, two references have not been cited and the statement, while true, ignores the limited circumstances in which the MPEP allows the use of multiple reference in anticipation rejection. Since multiple references were not cited in the anticipation rejection, the comment concerning multiple references provides no useful information.

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In the prior response, Applicant presented the language cited in the reference and cited explicit claim limitations that were not taught by Kiddy. In particular, the response quoted specific claim language and compared the cited teaching from Kiddy to demonstrate that Kiddy failed to teach at least those claim elements. As quoted above, the rationale for continuing the rejection cited irrelevant material from the MPEP, failed to address the specific rebuttal and then claimed that Applicant failed to do exactly what was done. This is strong evidence that neither the MPEP requirements nor Applicant's remarks were properly considered. Therefore, the action should be withdrawn and reissued with the consideration required by the MPEP. Nevertheless, to move prosecution forward, Applicant will address the continued incorrect rejection.

Applicant respectfully notes that to make a prima facie anticipation rejection, the MPEP directs:

TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH
EVERY ELEMENT OF THE CLAIM

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." . . . < "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required.

MPEP § 2131, 8th Ed., Rev. 5, p. 2100-67 (August 2006). It is noted that this directive stated the claim element "must be" shown in as complete detail and arranged as required by the claim. This is not a permissive standard, but rather one that the rejection is required to comply with.

The anticipation standard in the MPEP does not permit extraction of teachings of one element of Kiddy, e.g., from a method for obfuscation, and applying those to another element, executing the obfuscated instruction stream,

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because such a modification violates the "arranged as required by the claim" requirement. Also, the MPEP anticipation standard does not permit ignoring explicit claim limitations, which violates the "in as complete detail as is contained in the claim" requirement. As demonstrated below, the rejection violated these requirements and so a prima facie anticipation rejection has not been made.

Kiddy, Col. 5, lines 45 to 67 taught:

FIG. 5 shows a block diagram of an obfuscation method according to one embodiment of the present invention. Operations 512 and 522, corresponding to operations 419 and 429 in FIG. 4, break the operative instruction streams into parts. After the instruction streams are broken into parts, the parts are optionally transformed in operations 514 or 524. The optional transformations may involve reversing loops, expanding loops, flow transformation, renaming identifiers, changing the usage of variables, eliminating or substituting instructions, etc. (Emphasis added.) Finally, the optionally transformed parts are interleaved into a new obfuscated instruction stream in operation 532. In other embodiments of the present invention, optional transformations may also take place before the virtual machine instruction streams are broken into parts. (Emphasis Added).

While FIG. 5 shows an example of interleaving two instruction streams into an obfuscated stream, multiple instructions streams can be interleaved into a single obfuscated instructions stream according to the present invention. FIG. 6 shows an example where three streams of computer instructions are interleaved.

This section of Kiddy was cited as teaching exactly the determining processes of these claims. This section describes interleaving two instructions streams to form an obfuscated stream and optional transformations. The section references "instruction streams" generally and fails to provide any teaching or information about instructions within the instruction streams. Renaming an identifier, changing the usage of a variable, or even eliminating an instruction fails to teach anything with respect to what is done when the instruction stream is executed. It also fails to teach or suggest anything concerning counter values.

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The rejection, as quoted above, acknowledged this and cited to stack-balanced blocks. The instruction stream of stack-balanced blocks is taught as being interleaved with an original instruction stream. The stack-balanced blocks are inserted into the original instruction stream to obscure the original instruction stream without affecting the execution of the original instruction stream. Kiddy, Col. 5, lines 7 to 25. The fact that a block has an equal number of push and pop instructions, and so is a stack-balance block, fails to teach anything concerning a specific instruction either in the block or the original instruction stream that makes up the application program, i.e., what is identified as the important instruction stream by Kiddy. In particular, the rejection has failed to cite teaching of using any counter values of any type or receiving such a counter value in the same level of detail as contained in these claims.

Further, the operations relied upon are used in generating the obfuscated instruction stream and not executing the obfuscated instruction stream. Since the inserted blocks in the original stream do not affect the execution of the original stream, Kiddy teaches that the recited processes in these claims are not needed for execution of the obfuscated instruction stream.

According to Kiddy, the obfuscated instruction stream is simply executed. "The combined stream 1170 when executed on the virtual machine 1130 may perform the same set of logical operations as the instruction stream 1150." Accordingly, extracting teachings about how to obfuscate an instruction stream and applying them to processes used in executing an obfuscated instruction stream directly contradicts the teachings of Kiddy as to what is required to execute the obfuscated instruction stream. The processes in these claims are specifically limited to "A method for executing an obfuscated application program" and not a method for obfuscating an application program.

As a part of the method for executing, these claims recite:

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determining an application program
instruction location permutation to apply to a
current instruction counter value

No teaching of an application program instruction location permutation, current instruction, or a counter value for the current instruction has been cited in Kiddy.

As a part of the method for executing, these claims also recite:

determining an application program data
location permutation to apply to a current data
location counter value.

No teaching of an application program data location permutation, current data location, or a counter value for the current data location has been cited in Kiddy. General knowledge about stack-balanced blocks fails to teach anything in the same level of detail as recited in these processes. General knowledge about keeping an equal number of stack pushes and pops in a block fails to describe anything concerning an application program data location permutation.

These claims specifically recite that two different things are determined, an application program instruction location permutation and an application data location permutation. According to the MPEP, Kiddy must teach the specifically recited permutation and not defining blocks of instructions with particular characteristics and interleaving of such blocks with parts of an original instruction stream. In addition, the rejection has failed to identify a teaching of any counter values of any type in the cited portions of Kiddy. Examiner comments about pointers and counter values are not a teaching in Kiddy. The rejection has failed to cite any teaching in Kiddy of any thing equivalent or the same as the limitation recited in these two claim processes.

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Next, the applying process of these claims is "to an application program instruction in an instruction stream to execute." Again, methods for obfuscating as cited in Kiddy fail to teach or suggest anything about obtaining a reference to ... an instruction ... to execute and then executing that specific instruction.

The rejection contradicts the express teaching of Kiddy that the obfuscated instruction stream is simply executed. The whole purpose of the balanced blocks used in the obfuscation process of Kiddy was so that the obfuscated instruction stream could be simply executed and the results from the original instruction stream obtained. Kiddy shows in Fig. 11 that the blocks in the stream C2 are not important and fails to teach that anything is done to such blocks in their execution, let alone an instruction within such a block.

As stated above, Kiddy directly contradicts the interpretation used to reject these claims. The interpretation ignores the express difference in Kiddy between actions taken to obfuscate the instruction stream and actions taken to execute the instruction stream. Mixing and matching the two teachings is inappropriate for an anticipation rejection. Thus, based on the MPEP requirements for an anticipation rejection, Kiddy fails for multiple reasons to teach the invention in the same level of detail as recited in each of these claims. Only one of these reasons is needed to overcome the rejection. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 1, 14, 27, and 40.

Applicant respectfully traverses the anticipation rejection of each of Claims 3 to 6, 16 to 19, 29 to 32, and 42 to 45. Each of these claims distinguishes over Kiddy at least for the same reasons as the independent claim from which it depends. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 3 to 6, 16 to 19, 29 to 32, and 42 to 45.

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The rejection of Claims 7, 20, 33 and 46 stated in part:

determining an application program instruction location permutation that transforms said first application program into an obfuscated application program, said obfuscated application program having at least one application program instruction stored at a memory location that is based at least in part on a permutation of the memory location where the corresponding application program instruction is stored in said first application program (col. 5, lines 45-67);

determining a first instruction location of said first application program (col. 5, lines 45-67);

determining an application program data location permutation that transforms said first application program into an obfuscated application program, said obfuscated application program having at least one application program datum stored at a memory location that is based at least in part on a permutation of the memory location where the corresponding application program datum is stored in said first application program (col. 5, lines 45-67, col. 6, lines 1-47);

determining a first data location of said first application program (col. 5, lines 45-67);

applying said application program instruction location permutation and said application program data location permutation to said first application program to create an obfuscated application program comprising an instruction stream having application program data interspersed with application program instructions (col. 6, lines 1-47);

The rationale for continuing the rejection was the same as that quoted above. Applicant respectfully traverses the anticipation rejection of each of Claims 7, 20, 33 and 46.

The above quotations from the MPEP and Kiddy are incorporated herein by reference. The above quoted section of Kiddy again was cited as teaching exactly the determining processes of these claims. However, the determining processes are with respect to an application program. Kiddy distinguishes between an important instruction stream for

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which the results are desired and a filler unimportant instruction stream. As shown for example by Fig. 7 of Kiddy, the transformations are with respect to the unimportant instruction stream so that execution of the application program is not affected.

The instruction stream of stack-balanced blocks of a first instruction stream are taught as being interleaved with an original instruction stream. The original instruction stream is the application program, and the stack-balanced blocks are from the unimportant instruction stream. Kiddy is specific in teaching that the application program is simply interleaved with the unimportant stream.

In contrast, these claims teach processes that are performed on the application program and not some unimportant stream as in Kiddy. The rejection has failed to cite any teaching of a permutation on a specific instruction or a permutation specific program data in the important stream of Kiddy.

The rejection has cited no teaching that application program data is interspersed with application program instructions from an application program. Rather, Kiddy taught that blocks of one unimportant stream are interspersed with parts of the application program from which results are wanted. The obfuscation is obtained by using the unimportant stream and not by an action on the application program represented by the first stream. Transformation may be done to the unimportant stream so that its execution does not affect the execution of the important stream as illustrated in Fig 7 and the cited portion of Col. 6. This is not a transformation of the application program, but instead of the unimportant code whose function is to obscure the important instruction stream.

Therefore, Kiddy fails to teach the applying process of these claims in the same level of details as recited in these claims. By teaching operations on other than the application program, Kiddy fails to teach or suggest anything about modifying parts of the application program

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itself using the permutations recited in these claims. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 7, 20, 33 and 46.

Applicant respectfully traverses the anticipation rejection of each of Claims 9 to 12, 22 to 25, 35 to 38, and 48 to 51. Each of these claims distinguishes over Kiddy at least for the same reasons as the independent claim from which it depends. Applicant respectfully requests reconsideration and withdrawal of the anticipation rejection of each of Claims 9 to 12, 22 to 25, 35 to 38, and 48 to 51.

§ 103 Rejections

Claims 2, 8, 13, 15, 21, 26, 28, 34, 39, 41, 47 and 52 stand rejected under 35 U.S.C. 103(a). Assuming that the combination of references is correct for each of these claims, the additional material relied upon from the secondary reference does not correct the deficiencies of Kiddy with respect to the independent claims from which these claims depend. Therefore, each of Claims 2, 8, 13, 15, 21, 26, 28, 34, 39, 41, 47 and 52 distinguish over the combination of references for at least the same reasons as the independent claims. Applicant respectfully requests reconsideration and withdrawal of the obviousness rejection of each of Claims 2, 8, 13, 15, 21, 26, 28, 34, 39, 41, 47 and 52.

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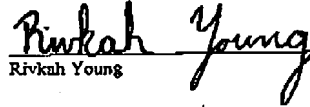
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Claims 1 to 52 remain in the application. For the foregoing reasons, Applicant(s) respectfully request allowance of all pending claims. If the Examiner has any questions relating to the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant(s).

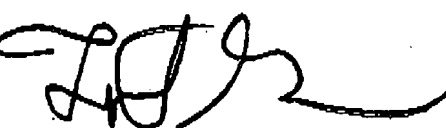
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I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. (571) 273-8300, on October 10, 2007.

Respectfully submitted,


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